



# The interests of EPIC AC-LGAD TOF from SCNU

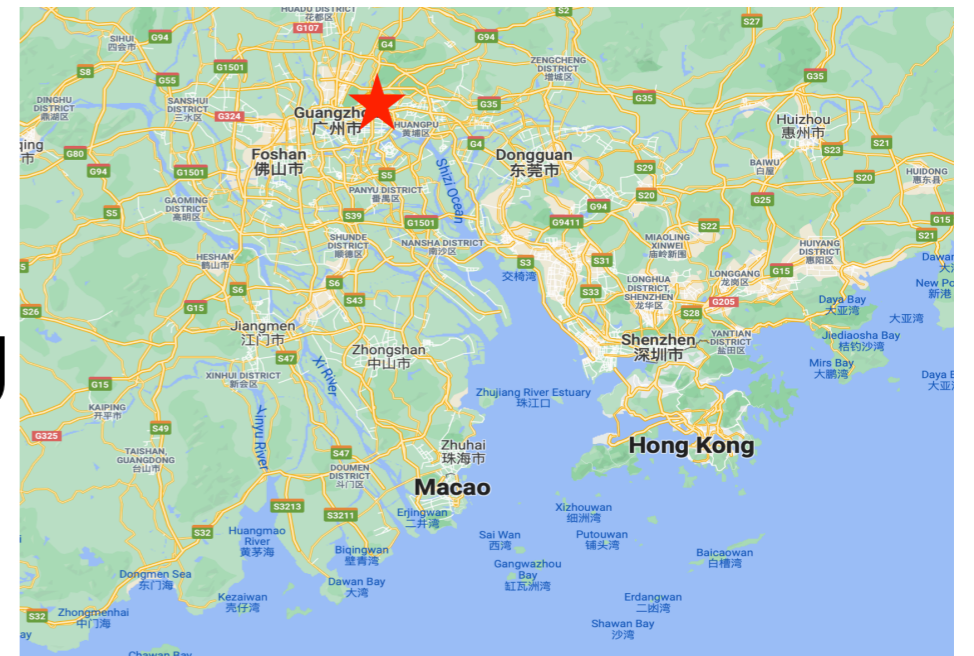
Shuai Yang

South China Normal University

# South China Normal University



- Established in 1933
- Located at Guangzhou, Guangdong
- Featured by physics, education and psychology



# Institute of Quantum Matter

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- ◎ Dedicated to particle and nuclear physics
- ◎ Research team (26 faculties and staffs)
  - Experimental groups
    - LHCb, STAR, BESIII
  - Theoretical groups
    - Heavy-ion physics, Nucleon structure, Particle physics phenomenology, Lattice QCD
  - Manpower involved in EPIC TOF project
    - Two faculties and 1 student
- ◎ Infrastructures
  - Guangdong Provincial Key Laboratory of Nuclear Science
  - Guangdong-Hong Kong Joint Laboratory on Quantum Matter
    - The University of Hong Kong
    - The Hong Kong University of Science and Technology
  - Southern Nuclear Science Computing Center (SNSC)



# Southern Nuclear Science Computing Center

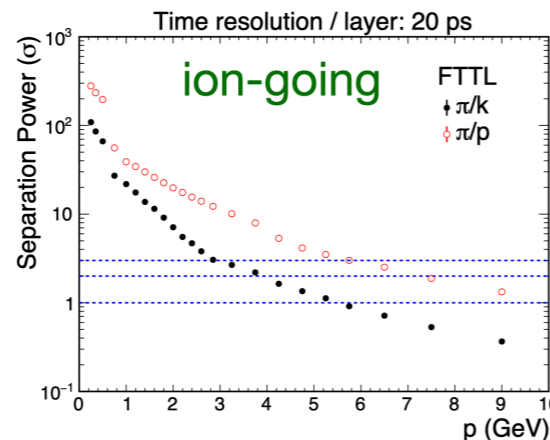
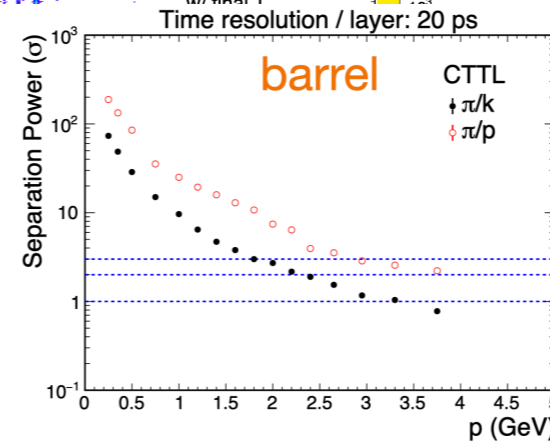
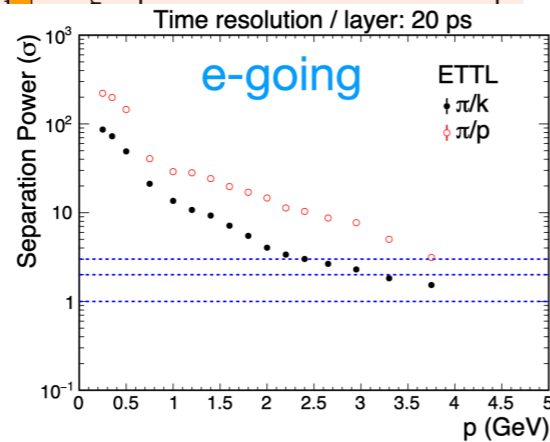
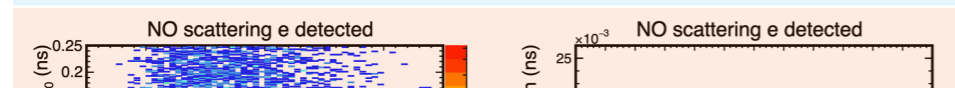
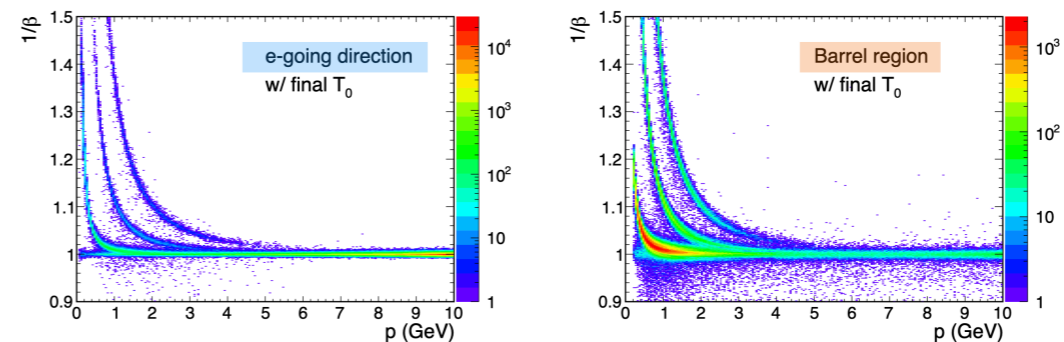
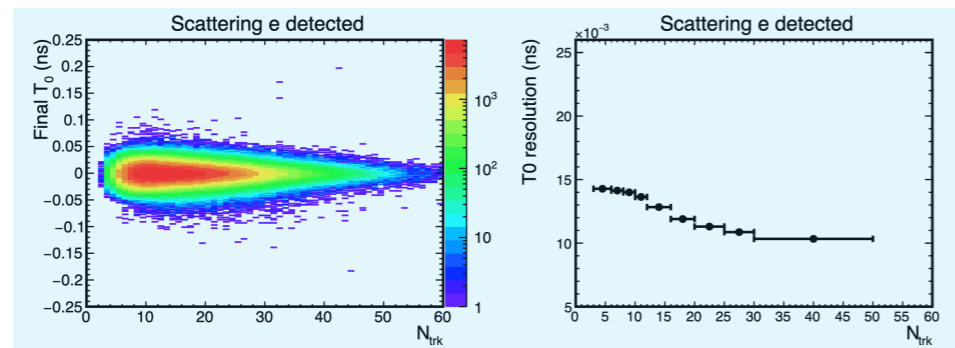
- ◎ Dedicated to the simulation and data analysis of nuclear experiments, and lattice QCD calculation
  - Being under construction since 2020/10
  - **Computing power (double-precision)**
    - ▶ Achieved 2.3 PetaFlops
    - ▶ Will achieve 3 PetaFlops in 2023 (Phase I)
    - ▶ Target to 15 PetaFlops in 2030-2035 (Phase II)



# Expertises related to EPIC TOF

## ● Already involved in the TOF simulation activities

- $T_0$  studies
- PID capabilities w.r.t. various timing resolutions



main sources  
 of timing resolution  
 path length uncertainty

11

● Combining (m)dRICH, PID over full p covered

# Expertises related to MRPC-TOF

## ◎ STAR Muon Telescope Detector

- MRPC mass production, cosmic-ray test, and quality assurance
- Integration to STAR, operation
- Trigger commission
- **Detector calibration**
- TOF/MTD on-call expert

## ◎ Physics analysis with PID by using timing detector (TOF&MTD)

## ◎ Plan to “phase in” EPIC TOF

- TOF simulation
  - SDDC
  - SNSC
- Future software development
- Seeking collaboration with the Chinese institutions working on LGAD
  - Sensor test etc.

